

- Halsall N.B. & Wratten S.D. 1988. Video recording of aphid predation by Carabidae in a wheat crop. *Brighton Crop Protection Conference: Pests and Diseases*, 1988. Vol. 3, pp. 1047–1052.
- Holland J.M., Begbie, M., Birkett, T., Southway, S., Thomas, S.R., Alexander, C.J. & Thomas, C.F.G. 2004. The spatial dynamics and movement of *Pterostichus melanarius* and *P. madidus* (Carabidae) between and within arable fields in the UK. *International Journal of Ecology and Environmental Sciences* **30**: 35–50.
- Holopainen J.K. & Varis A.L. 1986. Effects of a mechanical barrier and formalin preservative on pitfall catches of carabid beetles (Coleoptera, Carabidae) in arable fields. *Journal of Applied Entomology* **102**: 440–445.
- Luff M.L. 1975. Some features influencing the efficiency of pitfall traps. *Oecologia* **19**: 345–357.
- Spence J.R. & Niemelä J.K. 1994. Sampling carabid assemblages with pitfall traps: the madness and the method. *The Canadian Entomologist* **126**: 881–894.
- Sunderland K.D., De Snoo G.R., Dinter A., Hance T., Helenius J., Jepson P., Kromp B., Samu F., Sotherton N.W., Ulber B. & Vangsgaard C. 1995. Density estimation for beneficial predators in agroecosystems. *Acta Jutlandica* **70**: 133–164.
- Thomas D.B. & Sleeper E.L. 1977. The use of pit-fall traps for estimating abundance of invertebrates, with special reference to the Tenebrionidae (Coleoptera). *Annals of the Entomological Society of America* **70**: 242–248.
- Ulber B. & Wolf-Schwerin G. 1995. A comparison of pitfall trap catches and absolute density estimates of carabid beetles in oilseed rape fields. *Acta Jutlandica* **70**: 77–86.
- Weeks R.D. & McIntyre N.E. 1997. A comparison of live versus kill pitfall trapping techniques using various killing agents. *Entomologia Experimentalis et Applicata* **82**: 267–273.

SHORT COMMUNICATION

Heleodromia irwini* Wagner (Diptera: Empididae), an English boreo-alpine relict?—Heleodromia irwini* was first described (Wagner, 1985, A revision of the genus *Heleodromia* (Diptera, Empididae) in Europe. *Aquatic Insects* **7**: 33–43) from material collected on shingle and sand around the Dorback Burn [VC 95] and the European Alps. These and subsequent records from the Rivers Dee, River Lui and in Glen Derry (Falk & Crossley, 2005. A review of the scarce and threatened flies of Great Britain. Part 3: Empidoidea. *Species Status* **3**: 1–134. JNCC, Peterborough) suggest an exclusively boreo-alpine distribution with adults associated with exposed marginal sediments of upland rivers and streams. On 8.vii.2005 I found a male specimen at the edge of a narrow, shallow stream passing through an area of 'sugar' limestone but which originated from a small area of blanket bog immediately upstream on Widdybank Fell, Upper Teesdale (NZ 8130, VC 66). Upper Teesdale is well known for its relict boreo-alpine fauna and flora and it is suggested that this isolated occurrence of *H. irwini*, well removed from its Scottish and Alpine populations may be indicative of a post-glacial relict population marooned by retreating ice at the end of the last glaciation.—ADRIAN PLANT, Department of Biodiversity and Systematic Biology, National Museum of Wales, Cardiff, CF10 3NP.